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SEA FOOD.

A BRIEF HISTORY

OF

The New England Fisheries

WITH A FEW STATISTICS AND INTERESTING FACTS.

WHERE THE FISH ARE FOUND,

THE METHODS USED IN CATCHING AND PREPARING THEM FOR THE MARKET.

ALSO THE HISTORY

OF

FINNAN HADDIES,

AND HOW THEY ARE CURED.

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1893.

FISHERMEN.

The fishing industry dates back to the earliest years of the country. In 1618 a company of Pilgrims went back to England from Holland to solicit the consent of King James to take a colony to America. To the King's inquiry, "What profit might arise," they gave the laconic answer, "Fishing," to which the King responded, "So God have my soul, 'tis an honest trade, 'twas the Apostles' own calling." The history of their coming to these bleak shores is familiar. To the fisheries is given the credit of saving the infant colony from starvation. The fisheries supported the first free school. The fisheries have trained men to such endurance and bravery that the government has again and again recognized the value of their services in the navy. But when we speak of the industry, we sometimes forget the workers. Fish in the seines or on the hook means men at the other end of the lines. This schooling in practical life of the boys and young men of Cape Cod, Cape Ann and the coast of Maine has produced men fitted to command the largest ships in the mercantile marine, and leading and successful merchants in the largest cities of our land.

CAPT. SEWELL W. SMITH.

The every-day experiences of the fisherman develops self reliance and sound judgment, keen observation of events, and prompt, brave action in times of danger. These are all characteristics of manly men. They are the characteristics of New England fishermen. The thousands of men schooled in the hardships of a fisherman's life in the past and present, all attest the value and nobility of the calling.

We are happy in presenting to our readers the face of a representative Yankee skipper. Capt. Sewell W. Smith, Commander of the schooner "Glorianna," was born on Mount Desert Island,

Maine, in 1841. He began the life of a fisherman when only sixteen years old, and has followed his chosen calling faithfully all his life, for the most part the year round. His industry and good habits soon won the attention of the owners, and at the early age of 25 he was in command of a schooner.

Among others, he has had charge of the first-class schooners "Rattler," "Oresa," "Belle Franklin," "Reporter," "Henry Friend," "S. R. Lane," and "W. M. Foye." While in the latter vessel, he was one season in the employ of the Smithsonian Institute, collecting curious and uncommon varieties of fish. His services were much appreciated and won the hearty commendations of the professors. At the close of the season they presented him with two valuable volumes of their publications, which are much prized by him.

His present vessel, the schooner "Glorianna," was built in the fall of 1891, the Captain being part owner. When entering Boston Harbor from one of his first trips his schooner was run down and sunk by an English steamer, but all his crew were saved. The steamer was so clearly at fault that the expense of raising and repairing the schooner was fully paid by the steamer's owners, and a comfortable sum besides.

His trips are short and successful. There is little rest or sleep for him or his crew while away. His dories are out tending the trawls and fishing, nights as well as days, when wind and weather permit. Capt. Smith's career proves that industry, temperance, and character win success on the sea now as in the early years of the fishing industry.

There were landed at Boston during 1892, fresh fish as follows (giving the location where caught):

	HADDOCK.	COD.	HAKE.	HALIBUT.	POLLOCK.	CUSK.	
WHERE FROM.	LBS.	LBS.	LBS.	LBS.	LBS.	LBS.	TOTAL.
Jeffreys Bank	2,346,187	665,875	634,360	34,275	290,625	11,900	3,983,222
Middle Bank	3,298,125	394,875	594,188	13,150	61,875	152,750	4,514,963
La Have Bank	2,226,375	1,520,625	792,775	229,031	151,125	279,225	5,199,156
Western Bank	41,625	48,700	48,240	31,175	12,000	5,900	187,640
Georges Bank	9,170,250	3,169,625	886,500	290,005	83,625	210,250	13,810,255
Brown's Bank	1,173,625	1,289,875	115,735	275,125	79,750	220,125	3 154,235
Cash's Bank	510,500	306,575	810,875	16,430	29,900	330,325	2,004,605
South Channel	9,908,125	5,120,150	4,938,750	239,200	215,175	860,150	21,281,550
Ipswich Bay	78,250	101,250	36,800				216,300
Off Chatham	188,125	75,875	29,000	3,060	1,900	6,840	304 800
Nantucket Shoal	1,635,500	140,785	117,750	7,420	20,740	1,900	1,924 095
Cape Shore	540,250	542,250	186,875	13,875	25,600	128,125	1,436,975
Shore	6,390,050	3,540,875	3,100,750	37,235	222,425	447,050	13,738,385
Total	37,506,987	16,917,335	12,292,598	1,189,981	1,194,740	2 654,540	71,756,181

Not included in the above are Bream, Catfish, Flounders, Mackerel, Swordfish, Bluefish, Shad, Salmon, Smelts, etc., landed by vessels and also brought by steamers and railroads from points, Cape Cod to Nova Scotia, 10,000,000 pounds. Thirty-five cargoes containing 9,000,000 frozen Herring, making more than 90,000,000 pounds handled by the fresh fish trade of Boston in one year.

There were running to Boston fresh fish market during January and February, 1893, about 175 vessels; in size from 30 to 150 tons. During these two months about 1300 trips were landed, with an average of about 15,000 pounds per trip. The average per trip was far below the vessel average for the season, the severe weather making it impossible for the men to fish more than part of one or two days a week.

There was shipped to Boston during the same time by railroad and steamers, from points between Cape Cod and Nova Scotia, about 2,000,000 pounds. There were also landed twenty cargoes, containing about 6,700,000 herring, all with one exception from Newfoundland. Nearly 30% of the herring were small, weighing about 25 pounds to the hundred fish, which is unusual, as in former years Newfoundland herring have been large, weighing 60 to 70 pounds per hundred.

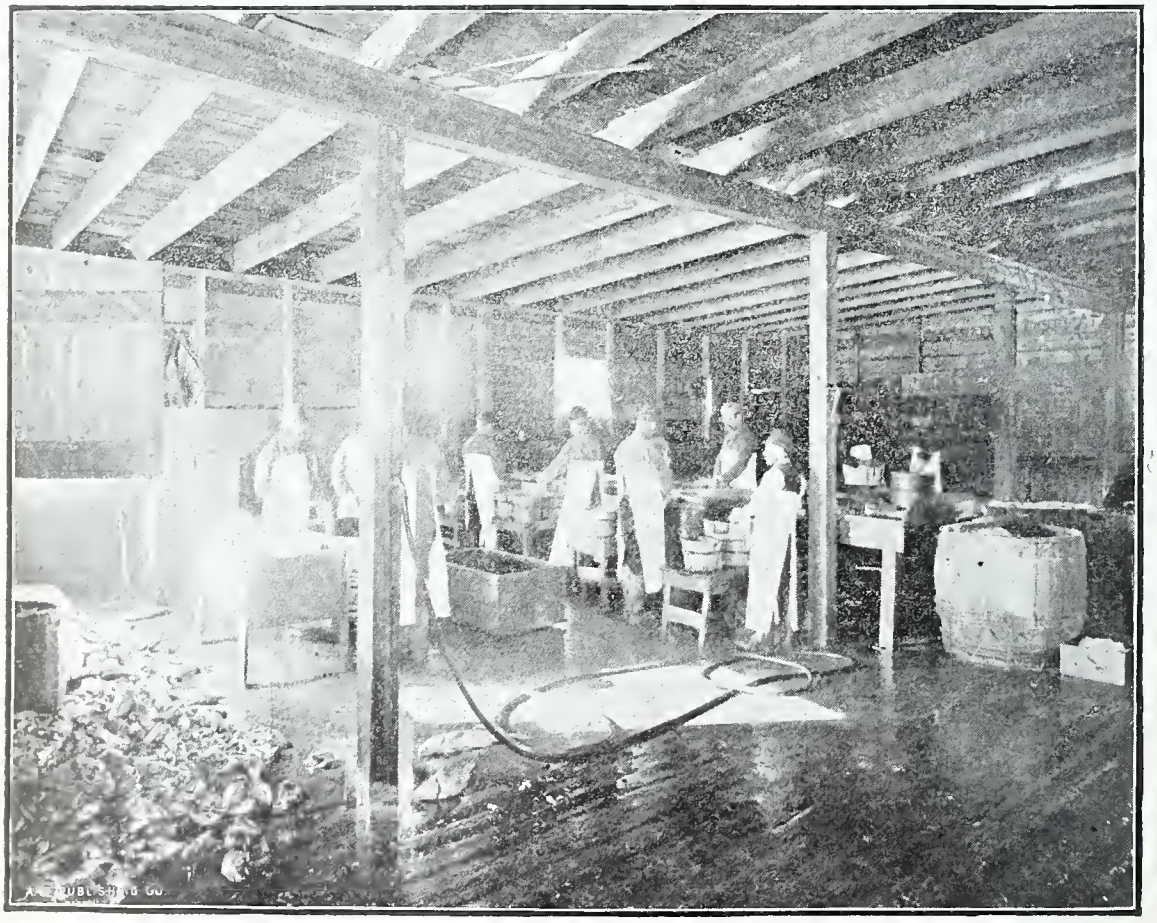
DISCHARGING FISH AT T WHARF, BOSTON.

Schooner "Horace B. Parker," Capt. William H. Thomas, is "high-line" of the fishing fleet for the winter of 1892–93, having stocked from October to March 10th, $17,500; the crew sharing $470.00, net.

FINNAN HADDIE.

THE name "Finnan" came from the name of the place where haddock were first smoked: Findon, Scotland. "Haddie" from the Scotch pronunciation of Haddock, and in Scotland were called "Findon Haddock," and years after when they were sent for sale to England, were called "Finnan Haddies." It is not known at what time they were first cured, but it was about the year 1750. They were first salted and dried and afterwards wet and placed in the ground, over a smouldering fire of dried peat.

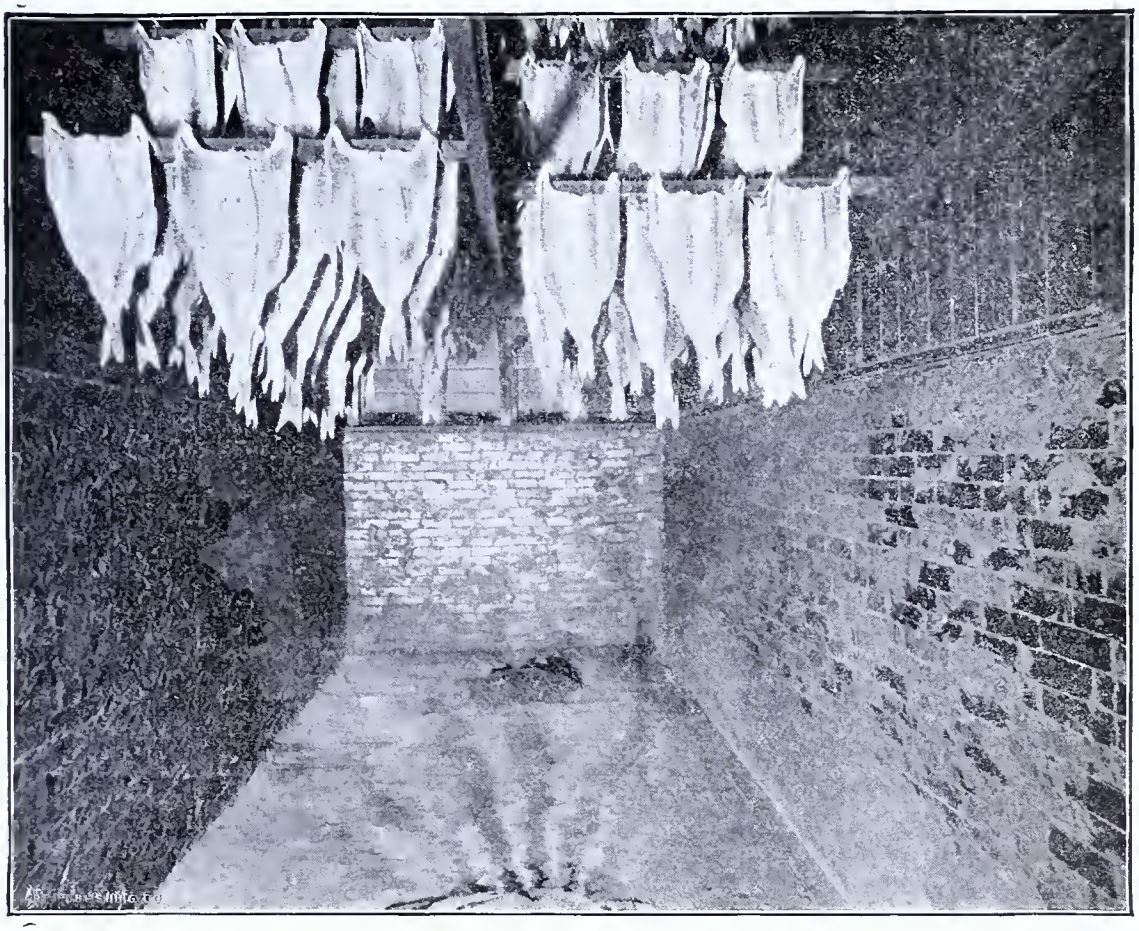
There is no record of the amount cured in England and Scotland, but many hundred tons are sold each season. The two best brands in Scotland are the "Eyemouth," a very mild cured and light colored article, and the "Aberdeen," a very dark colored and well smoked fish, and have about an equal sale. Great quantities are now cured in England, Grimsby being the centre, although Hull cures a large quantity. During 1892, 27,650 tons of haddock were landed at Grimsby, at a value of nearly $1,500,000. About half of these were cured directly, the other half shipped fresh, many of which were cured by merchants, particularly those of London, who prefer to cure their own haddies and thus have the colored fish best liked by their customers.



CLEANING HADDOCK.

Haddies were first smoked in this country about 45 years ago by an Englishman

named Finlay, at Rockport, Mass., but the sales did not warrant a continuance and he was obliged to give it up. A few years after, parties in Portland, Maine, began to cure them, and have continued to do so with increasing demand until about five years ago. Portland having no vessels to supply the fish, and being obliged to buy most of her haddock in Boston, thereby



SMOKING HADDOCK.

being at a disadvantage, the trade has been turned to the latter city. There are a very few good brands of haddies packed in this country.

Most of the curers think to split and dry a haddock is to make a finnan haddie. To make a good haddie, requires much time and careful attention. The material used must be of the best, and the pickle in which they are placed should contain the essentials to give the haddie the rich flavor, and at the same time the preserving qualities; all depends on the pickle and the material used in smoking.

Haddock should be first thoroughly washed, then the head is cut off, after which the fish is washed in a strong solution. The cleaners remove all black skin, blood, and scrape the backbone; then the fish are split and placed in pickle an hour or more, according to the weather; then stretched on hooks, which are attached to sticks to hold them in the smoke-house, and then placed on dryers and allowed to thoroughly dry. Then they are placed in the smoking-kilns, in tiers one above the other, leaving room for the smoke to

circulate, until the house is full. A fire of oak wood is started all over the floor of the house, and burned until the fish are in proper condition (from 6 to 18 hours), when oak sawdust is applied to the fire, which smoulders and produces a dense smoke that is kept up until the fish are thoroughly impregnated, when they are cooled and packed.

PACKING HADDIES.

DESCRIPTION OF MARKET FISHING TRIP.

THE first thing is to procure lines, should any new ones be needed, provisions, water, wood and coal. These are stored in the cook's room; about fifteen tons of ice in summer or seven in winter, which is stored in compartments about eight feet square in the hold; and if it be winter, 8,000 frozen herring; or if summer, 30 barrels of any kind of fresh bait (herring, mackerel or alewives) which are also stored in compartments, and if frozen bait, covered with straw to keep from thawing; or if fresh bait, ice is chopped fine and mixed through the bait to keep it fresh and firm. Then they are ready to start.

Should the wind be moderate, a tow-boat is procured and the vessel is towed down clear of the harbor. Should the wind be fair they push out of the dock, sail is hoisted and away they go. Ropes are then coiled away and everything made snug. Then every man overhauls, puts in order and baits his trawls, and they are ready to fish as soon as they arrive on the fishing grounds.

Our vessel at the fishing grounds, the dories are put into the water, the men get into them and are towed after the vessel until all is ready, then the first dory throws into the water their trawl-buoy, having attached to it 600 feet of line, the other end being attached to the trawl, and as soon as the line is all out the skipper says "let go" and the line attached to the vessel is loosened and the first dory is by herself, and the next dory throws her trawl-buoy, and so on until all the dories are out; the boats being about an eighth of a mile apart. As soon as the dories are cast off, each one immediately throws over a trawl anchor to keep that end of the trawl in position. One man throws the trawl over-board about six feet at a time; the other rows the boat in the same direction the wind is blowing, until the trawl is all out, when they put out another anchor and wait for word from the skipper, who sets a signal from the vessel by flag "to underrun," when all pick up the end of the trawl, take off the fish, put on new bait when required and let the trawl back into the water, and continue on in this way until they have a boat load, or until time to return on board. The vessel in the meantime keeping close to the dory last put out, so in case of fog, snow or sudden storm, each dory will immediately row in that direction and be picked up by the vessel, the skipper in the meantime firing guns and blowing horns in case of fog or snow, that the men may hear and know the position of the vessel.

After the fishing is over the dories return to the vessel, the fish are thrown on deck (with a pitchfork), are dressed, well washed and placed below, each kind taken being placed in separate compartments with plenty of chopped ice scattered through to preserve them. The watch is then set (two men at a time who are relieved every hour or two) and the balance of the men go below and to bed. At daybreak the next morning the men are called and the fishing begins, and continues each day until they have a fare (from one to four days, according to the quantity of fish being taken).

Fishing over for the trip, all sail is crowded on and Boston is reached as soon as possible. With a fair wind they sail up the harbor, otherwise steam is taken and they are towed up to T Wharf. On arrival, if fish are scarce, dealers anxious for a supply, the captain usually gets his own price; but if plenty, the skipper is obliged to find a purchaser; in all cases the fish are sold to the highest bidder.

After the fish are sold they are hoisted out in baskets or tubs and weighed on the wharf, 500 pounds at a time, placed in handcarts that hold about 1000 pounds each and are hauled to the stores by the dealers. The fish all out, and while the vessel is being cleaned up, the purser collects the money and all hands go into the cabin and settle the voyage. The first things to take out are the great generals (bait, ice, wood, coal, water, towage, wharfage, and fishing lines), skippership (2½% of gross stock that goes to the captain), the vessel's part (25% of gross stock); then the small generals (provisions), high line (from $2.00 to $5.00 to the men in the dory catching the most fish), and the balance of the money is divided share and share alike, captain and cook included.

TRAWLING.

THE old system of hand-line fishing in boats and from the deck of vessels is almost entirely superseded by the trawl. The trawl system is by the use of a long line about one-fourth of an inch in thickness, extending along the bottom of the ocean, secured at either end by a small anchor, which are buoyed to the surface by means of buoy lines, to which are attached empty wooden kegs with a staff four feet long with a small flag attached to mark the location. Hooks (of various size, according to the kind of fish sought) with gangings (a small line of one-sixteenth of an inch in thickness) for halibut four feet, cod three and one-half feet, haddock two feet long, are attached to the main line; for halibut about eight feet, cod six feet, haddock three feet apart. Trawl lines are about 1800 feet long, and the average number of hooks about 500, and are kept coiled up in tubs (about two-thirds of a barrel) when not in use. Each dory is provided with eight tubs of trawl, and the number set depends on the weather. Should it be fine the full number is set, making about 4000 hooks to a boat, or a total of 40,000 hooks to a vessel.

Trawling in England means fishing with beam trawls, which are triangular bag-like nets towed over the sea bottom. The mouth of the trawl net is attached to a frame consisting of a long wooden beam supported by a triangular hoop of iron at each end; these trawl-heads or runners glide over the ground and raise the beam three or four feet above it. The upper side of the net is attached to the beam, the sides to the runners, while the lower edge of the net is formed by a thick and heavy rope, which is a great deal longer than the beam and thus lies in a deep curve. As the net is towed along the fish are disturbed from the sea bottom and rise above the foot rope, and being prevented from escaping by the upper side of the net they

SETTING TRAWL.

are swept into its narrow end. Most of the fishing is done by steam trawlers, and about every six hours the net is drawn up to the vessel by a steam winch and the fish taken out. The size of the net varies according to the size of the vessel working it, from twenty-five to one hundred feet long and from ten to fifty feet wide at the mouth.

In the first months of the year 1892 an attempt was made to introduce beam trawling here as pursued in English waters. The fish sought for by this method is the English sole, a very fine article of food, highly prized. A beam trawler was built, equipped and the experiment tried. Sole and other fish were found in good quantities, but owing to the fact that two of the large nets became entangled in wrecks at the bottom, the projectors became disheartened and gave up the enterprise. It is to be regretted that this experiment was abandoned before a fair trial, as it is believed that it would have been successful.

The inshore fishing is largely pursued in small boats that go out and return daily, use many less hooks and the fish are generally smaller than the deep sea fish.

UNDERRUNNING TRAWL.

GILL NET FISHING.

During January, February and March cod are taken in Ipswich Bay, Massachusetts, in nets with meshes large enough to allow the small fish to pass through. The large fish strike the net and push through until the twine gets entangled in their gills, when it is impossible for them to get out until removed by the fishermen. At no other time can these fish be caught in this manner. It is thought that as the fish bury in the mud in this locality they become blind and are thus unable to see the net. Cod gill nets are set on the sea bottom. The bottom side is weighted to keep it down; on the top side is arranged a glass ball to keep it perpendicular. The net is

anchored at only one end, to allow it to swing with the tide. A barrel buoy is attached to the same, as in trawl fishing, to show the location. The net is drawn once a day.

Mackerel and herring are caught in gill nets in the same manner as cod, but the nets are set on the surface, the bottom side leaded to keep it down and the whole floated by a string of corks; these are also drawn about once a day. Mackerel and herring are also caught by purse seine. A mackerel seine is about 1500 feet long and 200 feet deep. The lower side is leaded to keep the net perpendicular, the top corked so to float the whole. Arranged on the lower side are rings placed a few feet apart, through which is run a line called the purse line. To use a purse seine, mackerel must "school" at the surface.

A large boat from thirty to forty feet long and a dory are used, the seine being kept on the large boat in cruising for mackerel and is towed astern of the vessel. A man is kept on the masthead of the vessel on the lookout for a "school," and when one is sighted the vessel placed as

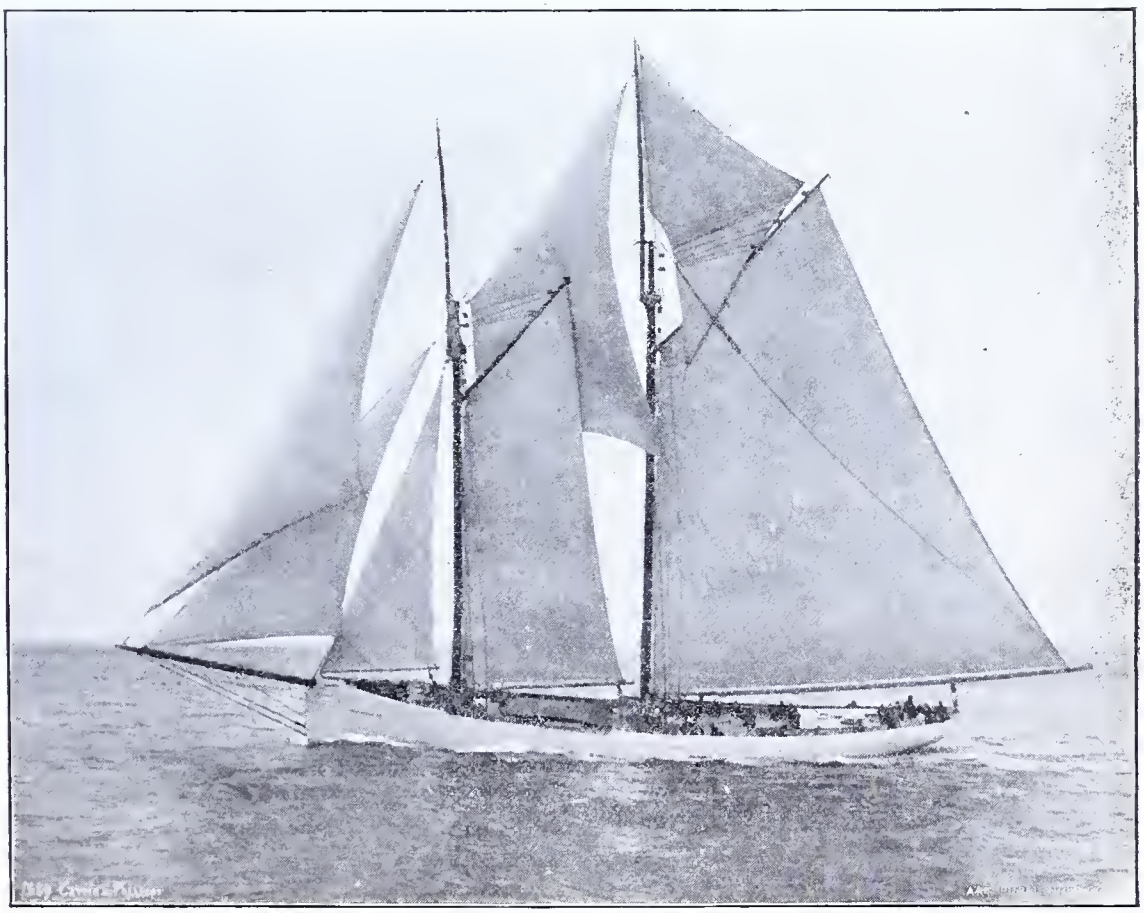
MACKEREL SEINE AS SET. PURSING UP.

near to it as possible, the crew take to the boats and encircle the fish in the following manner. A small part of the seine is placed on the dory, three men grasp the net in the large boat, one on the cork side, one on the leaded, and one on the lint, and when all is ready begin to throw over the net, the men rowing the seine boat for dear life, the two men in the dory mean-

while throwing over their net and rowing in the opposite direction, making a circle around the fish, and as soon as the ends can be brought together the oars are taken in and all hands grasp the purse line and pull, thus closing the bottom of the net. After the seine is pursed up "drying in" is in order, that is, hauling the net into the boat and confining the fish in as small space as possible. The vessel is then brought alongside the seine and the mackerel are bailed on deck. Should there be a large quantity, only enough are bailed out that can be dressed and iced or salted while in good order, the rest being kept alongside alive.

Mackerel often sink before the net can be pursed up and thus escape. It frequently happens that a small hole is left at the bottom of the net, and, if only a few inches wide, the fish will find it, and if once started the whole school will escape in a few moments.

The money stocked is divided in about the same proportion as on cod or haddock vessels.

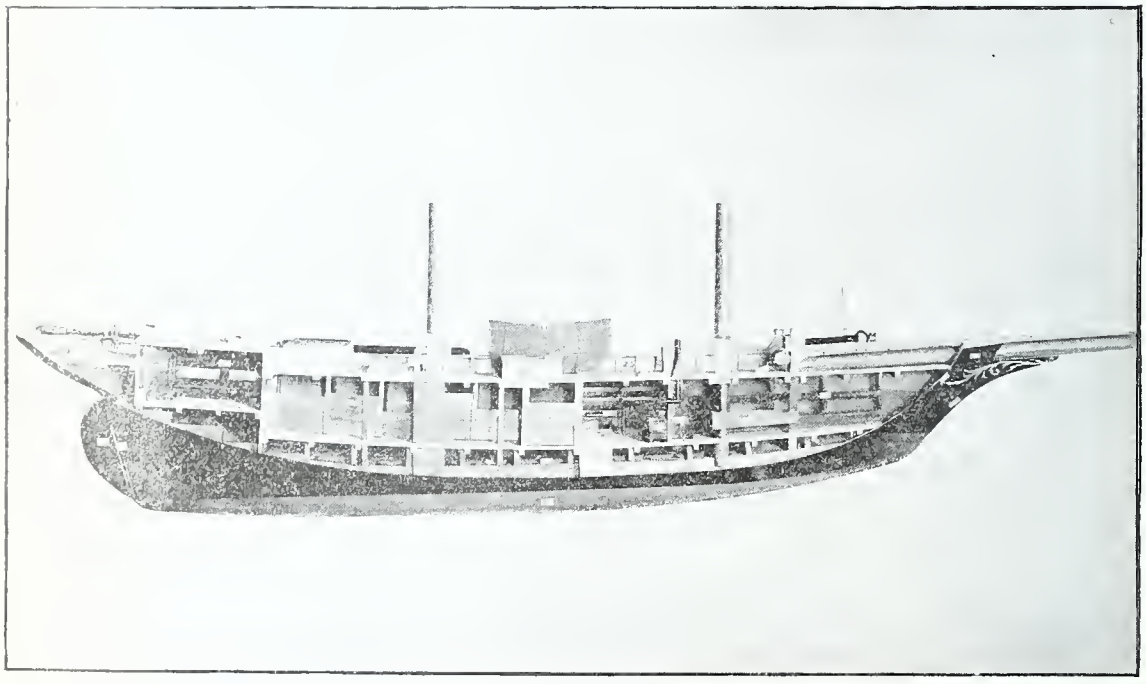


MARKET FISHING SCHOONER, CARRIE E. PHILLIPS.

FISHING.

ALL cod, haddock and halibut fishing for the fresh market is done in dories (an open boat with flat bottom from twelve to sixteen feet long, four and one-half to five and one-half feet wide in the centre, tapering to each end). Vessels carry crews from six to twenty-three men, according to the number of dories; the smaller have five, the larger ten dories. Small vessels use small dories and fish one man to a boat, large vessels large boats and two men fish. In small vessels the captain goes in a dory the same as one of the crew, and the cook is left alone on board to manage the vessel; the captain, cook and one man manage the large vessels while the rest of the crew are away fishing. Most of the best captains, and many of the best men, own some part of the vessel in which they sail, and very few fishing vessels are owned wholly by single individuals or firms. A captain thinking of building a new vessel goes to his friends, who subscribe for whatever part they want to take, usually one or more sixty-fourths; who, after the whole has been subscribed for, meet and elect one of their number to act as agent, who contracts with some builder, assesses the members of the syndicate, pays all bills, and after the vessel goes fishing receives the earnings, pays all bills and semi-annually declares a dividend if any money is left.

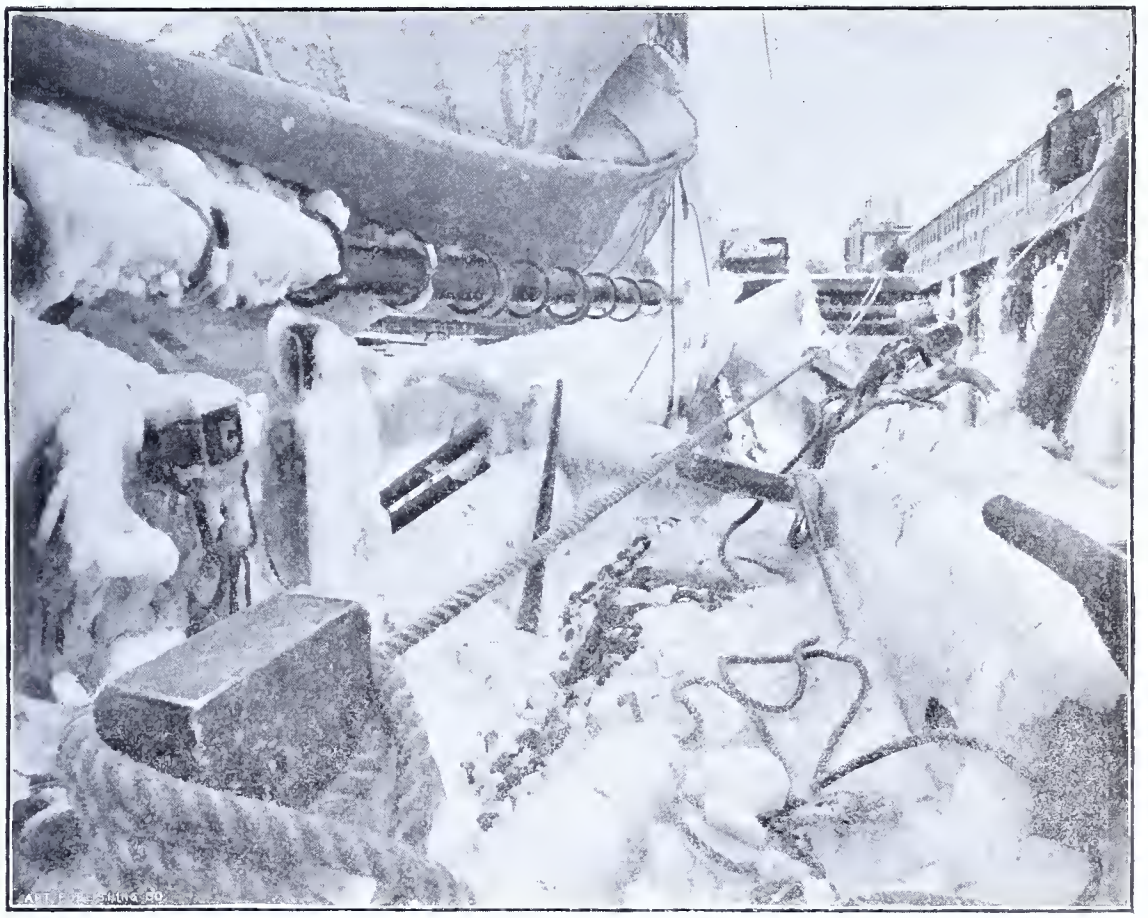
The fresh fishermen's life, as far as it relates to the inner man, is far better than that of the workingman's on shore, for even if they don't make much money they are assured of a good living. They are often in port where they can get fresh supplies of meats and vegetables and have plenty of ice on board to keep them fresh. They are good livers, setting a good table, and the cook who cannot do that usually makes but one trip on the same vessel. Their trips usually average five to twelve days, less than five is a quick trip, more than



INTERIOR MODEL OF A MARKET FISHING SCHOONER.

twelve a long one; although sometimes it is three and even four weeks, and those trips usually show poor returns for the time spent, as the bait has spoiled and the stores all been eaten up and been replenished at some port, so the expenses have eaten up all the stock and there is nothing left for the men to divide. A successful skipper generally has the best vessel and has his pick of men, who sometimes go with him for years and has very few changes of men during a season. An unsuccessful one has to take what he can get, usually a poor, shiftless lot of men, and is often obliged to take a new crew every trip.

The time of their passage to the fishing grounds will depend on the weather, the direction and velocity of the wind, and the grounds on which they intend to fish. An average passage to Cape Cod would be eight hours, to Georges Bank thirty hours and to La Have Bank forty hours. It frequently happens that a vessel will visit several grounds on one trip before finding fish in sufficient numbers to procure a cargo, and not infrequently a skipper is obliged to put in to procure a new supply of bait, ice and provisions; thus consuming the time of two or even three ordinary trips before they do any fishing. From June to October, dogfish (not a food fish, but a species of shark) are a great plague to the fishermen and spoil many an otherwise successful voyage. When dogfish appear it is in great numbers and when a hook strikes the water it is immediately seized by one of them, thus preventing food fish from taking the hook, or should a cod or



FORWARD PART OF MARKET FISHING SCHOONER "GLORIANNA," AS SHE ARRIVED AFTER A COLD SNAP.

haddock take the hook first, they pounce upon and devour it before the fisherman can get it out of the water. Many unsuccessful trips are from this cause alone.

There were employed in the New England fisheries, in 1889, 36,536 men, 1542 vessels, valued with their outfits at $6,382,006. Massachusetts has 836 vessels; Maine, 408; Connecticut, 214; Rhode Island, 69; New Hampshire, 15. There are also employed 11,561 boats, valued at $657,010. The total investment in vessels, boats, apparatus, shore property and working capital was $20,094,794, of which Massachusetts had $13,245,229; Maine, $2,898,893; Connecticut, $2,826,834; Rhode Island, $1,020,178; New Hampshire, $112,660.

Considering the New England States together, Cod is by far the most important specie, 97,145,645 lbs., being valued at $2,539,757, after which come Oysters at $1,399,784; Lobsters at $833,736; Whale products, $828,463; Haddock at $738,732; Mackerel at $731,424; Halibut at $725,756. Massachusetts leads all with 299,217,669 lbs., valued at $5,858,274; Maine comes second with 129,559,864 lbs., $2,111,206, followed by Rhode Island with 127,365,475 lbs., $835,144; Connecticut with 92,672,464 lbs., $1,557,506, and New Hampshire with 4,354,568 lbs., $88,511.

In 1889 it is estimated that 208,000,000 lbs. of fish products passed through the hands of the wholesale dealers of Boston. The total fish trade of Boston based on the value of products as sold, reached the aggregate of $11,100,259.

SWORDFISH.

The number of men engaged in and the yield of all the fisheries of the world, as far as reports are obtainable, are as follows: United States, 200,000 men, yield $50,000,000; Canada, 60,000 men, $17,655,000; England and Wales, estimated yield, $23,000,000; Scotland, $8,000,000; Ireland, $1,800,000; Norway, $6,000,000; Holland, $2,000,000; France, 138,000 men, yield $20,000,000; a grand total of 600,000 men, estimated, and $125,000,000 in value taken during one year.

MACKEREL.

The mackerel season of 1892, like its predecessors of the past half dozen years, has been a distinct failure.

The year opened up quite favorably; an encouraging catch was made before the middle of August, and it was thought that the fall fishery would materialize with a large catch when the mackerel began to school, preparatory to going south.

These hopes were blasted, as poor weather and lack of fish made the fall's work a complete failure.

The cause for the decline of this once corner-stone of the New England fisheries is ascribed by the old fishermen to the use of the purse seine. Others say that no form of fishing has any appreciable effect on the numbers of the fish, but that the falling-off is due to natural causes.

The United States, some six years ago, passed a law prohibiting the catching of mackerel or the landing of the fish in the country if caught before June 1. This law expired in 1892, and this season the seiners may meet the mackerel early if they choose.

This law was passed with good intent, and many contend that its provisions should be extended at least five years longer.

Its object was to prevent the wholesale destruction of spawn fish when coming north in the spring.

The attention of the Canadian government has been called to this matter, and their fishery officials have pronounced against the purse seine as an engine of destruction of the fish, and a proposition has been made to the United States that both countries, by mutual agreement, bar the use of the purse seine, but nothing definite has been accomplished.

Protection to the mackerel fishery against net fishermen is nothing new, for in 1653 and 1692 the General Court passed an order that no person should haul ashore any mackerel with any kind of nets or seines, and that no person should catch any of the fish, except for use while fresh, before July 1. In those days the latter clause meant only what each fisherman needed for his own table.

After that the business rapidly increased, and the fish were so plentiful in Massachusetts waters that in 1825 a single jigger with a crew of eight men, took over 1300 barrels.

In 1865 the purse seine came into use, but its employment did not become general until ten years later. Previous to the latter date, the fleet fished with hook and line, each man using four or five at a time. This method conserved the supply, as the large fish only were taken, the smaller being allowed to mature.

Mackerel school in great numbers on the surface of the water, and after 1875 the hook and line were abandoned and the seine, the royal and easy road to the mackerel catcher's fortune, was adopted.

In 1882, '83 and '84, and in the years immediately preceding, there were about 700 sail of vessels, owned from Provincetown to Eastport, engaged in seining mackerel along the American coast to the Bay of Fundy.

A school of mackerel would be secured and the seine made fast to the vessel's side. The entire catch would be bailed aboard, the large fish culled out and saved and the smaller ones would be dumped overboard. So great was the slaughter that it is asserted that the coast from Boston Bay to Mantinicus Island in Maine, during the

months of July and August, from five to thirty miles off shore, was literally covered with dead mackerel.

As a result, the fish were driven off the coast. Constantly harassed by the unrelenting seiner, from the time the mackerel appeared north of Cape Hatteras in March until the last straggler had rounded Cape Cod for winter quarters in November, the fish had indeed a poor show.

New spawning grounds were no doubt selected, and as fish have a tendency to come back to the place where they spawn, they do not appear in as great numbers on the American coast as formerly.

In years past the mackerel have disappeared for a time, but at no period in the history of the business has their absence been prolonged as during the past ten years.

In 1851 there were inspected in the New England States, 363,787 barrels of salt mackerel. We have no records of mackerel used fresh for this year, but it is safe to say that the total would exceed 400,000 barrels.

From the report of the Inspector General of Fish for Massachusetts, the number of mackerel inspected in 1892 was 67,095 barrels, against 56,965 in 1891 and 38,783 in 1890; the latter is the smallest since the industry has attained any commercial importance.

According to classification, the inspection was 12,794 No. ones, 32,261 No. twos, 16,454 No. threes, and 661 No. fours. The total returns on re-inspection were 3583 barrels.

The supposition that mackerel were first taken in the year 1800 is erroneous. There is mention of it in the earliest records of the country. Winthrop relates that in 1633 the ship "Griffin," two days before her arrival at Boston, lost a passenger by drowning as he was casting forth a line to catch mackerel. The first settlers must have commenced the fishing soon after, since we have the fact that Allerton, one of the Pilgrims who came over in the "Mayflower," received mackerel for sale at New Haven, Conn., on half profits in the year 1653. That the business was prosecuted with success is evident from the additional fact that in 1660 the commissioners of the colonies recommended to the general courts of the confederacy to regulate it, "considering that the fish is the most staple commodity of this country." The mackerel fishing at Cape Cod was held by the government of the colony of Plymouth as public property, and its profits were appropriated to public uses. The records show that it was rented from time to time to individuals who paid stipulated sums, and that a part of the "fund to support the first free school established by our Pilgrim Fathers was derived from it."

Exact statements as to the progress and extent of the mackerel fishery previous to the Revolution cannot be had, but it is still certain that the people of the colonies were largely concerned in it. It is certain also that about the year 1770, Massachusetts owned not less than 100 mackerel catchers. During the Revolution, repeated losses and discouragements caused a suspension of the fishery, and the revival of it in 1800 leads many to suppose that the origin of the fishery dates from that time.

The modes of catching mackerel have varied with time. The original method was probably by seines and in the night. The townsmen of Hull petitioned the general court of the colony in 1671 to be allowed to fish for mackerel at Cape Cod, and stated among other reasons that they were some of the first who went there and that by "beating about at night and travelling on the shore at all times and seasons.

they had discovered the way to take them in the light as well as in the dark nights." This shows the practice of the early settlers.

The court of Plymouth, however, in 1684 prohibited the taking of mackerel ashore with seines or nets, and ordered the forfeiture of these implements and the vessels or boats of persons who violated the decree.

The mode of catching by bobbing or with fly-lines is said to have been introduced about the year 1803.

Mackerel were first salted in 1818.

What may prove to effect a possible revolution in mackerel seining is the idea of steam seine boats. Three are now (March 15) being built and will be ready May 1st. The boats will be 50 feet long, 11½ feet wide, and 5 feet deep. The machinery consists of a 40-horse-power coil boiler, compound engine, and steam winches for pursing, hoisting, etc., and is expected to drive the boat ten miles per hour. A 25-foot mast forward is for the man to go aloft to follow the schools, and from there, by means of wheel-ropes, will steer the craft in the direction of the fish. It is estimated that three sets can be made with the new boat against two in the old.

The first vessel to start south for mackerel in 1893 was the schooner "Ethel B. Jacobs," which left March 15th.

SHORE FISHERIES.

The shore fisheries, which panned out so unexpectedly the preceding year and thereby furnished a supply of cheap fish, make a good showing this season. The revival of the fisheries on the New England grounds, after they had been practically discontinued, shows that, when allowed, nature may re-stock fished-out grounds.

The amount of cusk, hake, haddock and pollock caught aggregated nearly 20,000,000 pounds, and with the codfish taken will go 1,500,000 pounds more.

These shore fisheries are now an important source of revenue to the fishermen.

HERRING.

The herring fishery has risen to commanding importance during the past four or five years.

Where but a dozen or more vessels were employed in the winter at Grand Manan and Newfoundland, the number has grown rapidly, until now more than 100 vessels, nearly one-fifth of the fleet, are engaged in the business exclusively with Newfoundland.

The demand for this fish, both frozen and salted, has been developed rapidly, and is, no doubt, due to the fact of the scarcity of mackerel and the high price of other grades, these furnishing an excellent substitute.

In 1889, 26 vessels, with a tonnage of 1,140.70, were engaged in the New Brunswick frozen-herring trade, and brought to the markets of the United States 6,289,000 herring, valued at $39,622. Forty-six vessels, of 4,267.98 aggregate tonnage, found employment in the frozen-herring trade with Newfoundland and brought to our markets 16,235,000 herring, valued at $239,675.

In addition to the herring brought to the United States on American vessels, there

was imported on vessels sailing under the British flag 2,593,000 pounds, valued at $33,939. This is, however, in addition to large quantities of frozen herring imported from the Provinces on steamers. Many herring are shipped in this way on the regular line of steamers plying between Newfoundland and New Brunswick ports and Boston.

In 1892 it is estimated there were handled 24,195,000 herring.

HALIBUT.

HALIBUT are growing scarcer each season, and in a few years, if the present ratio of decrease continues, the fish will have become so depleted on the ocean banks as to make the fishery unremunerative unless the grounds are allowed to remain unfished for a series of years.

For the past half dozen years this fish has become a luxury found only on the table of the well-to-do.

What some few years ago would be considered a very small fare and unremunerative is now looked upon as a paying trip, and a 15,000-pound fare is now the rule.

The increase in the price has made the business a paying one to the operative fishermen, and fare lots have averaged through the year about 13 cents per pound for white fish and 12 cents for gray.

It is not improbable that fresh halibut voyages may be made to Iceland, where the fish are more plentiful. Of course, this would necessitate the employment of swift steamers, as the fish would spoil before they could be brought to port in a sailing vessel.

Quite a fleet sailed for Iceland last year to engage in the salted halibut business for smoking purposes. The season was not so successful there as formerly, although quite a good aggregate catch was made, amounting to about one-half the catch, taking the estimate that one pound of the stripped and salted fish is equal to three of the fresh product.

The grounds off Greenland also offer a prolific field for halibut fishermen, although foreigners are prohibited in these waters. The catch of Iceland halibut was as follows:

1890..... 1 040 000 pounds.
1891..... 1.460.000 "

The catch of Bank halibut was as follows:

1890..... 5,108,350 pounds.
1891..... 5.395.110 "

The catch of Georges halibut was as follows:

1890..... 1.896,133 pounds.
1891..... 2,059,118 "

LOBSTERS.

THE catch of lobsters in New England is steadily decreasing each year, and the wonder is that, with the imperfect protection the fish have had, they have not been entirely exterminated. Massachusetts and Maine are the only States having any laws regarding the lobster fisheries. The laws in Massachusetts are such that no one can catch or sell lobsters measuring less than 10½ inches in length. In the State of Maine, where most of our lobsters are caught, the length required by law is 9 inches between April 20th and July 1st. During the remainder of the year the length is 10½ inches; still there is a great temptation to fishermen and dealers to

keep and sell those caught under the legal length. During 1892, 55,000 short lobsters were seized by the Maine authorities, and these are thought to represent about 12½ % of the number of short fish taken and shipped.

Efforts are being made in Maine to have a close time for two months, when none shall be caught, and also to get an appropriation for a state hatchery. If the proposed changes are made, there is no doubt that the number will be increased.

In the Provinces they have a regular close time, during which none can be caught; this together with the hatcheries established by the government seems to be beneficial, as without doubt the number of lobsters are on the increase. One hatchery alone in Nova Scotia last year hatched out 65,000,000 of young lobsters.

It is estimated that there was canned in 1892, 250,000 cases of lobsters (as against 500,000 cases in 1890) of which the United States consumed 40%.

Transplanting lobsters to the Pacific Ocean by the United States began in June, 1874.

A FISHERMAN'S FISHING TRIP.

The following is a description of a trip after fresh cod and haddock, as related to us by one of the oldest hands in the business:—

We started from T Wharf this day fortnight bound for Georges with a spanking breeze blowing from the Northwest, blowing so heavy that we double reefed the foresail before we started and set no other sail, and indeed that was enough, little as it was, for it carried us off on the ground before the gale had moderated, and we laid around two days hove to before we could fish. When we did, we got nothing, and went from there to Browns, found nothing there and then went to La Have. Another gale came on before we had a chance to fish and we let the anchor go with 150 fathoms cable and rode it out. When it moderated so we could fish, we found some fish, but our bait was so poor by that time, we did not do so well as we ought and only got about 40,000 all told before we had to leave, being out of bait and grub, and got back here this morning.

We have struck a decent market, got 3½ for our haddock and 5 for our cod, so the crowd will make something out of it, but not much. We have been gone so long the expenses will eat most of it up.

This is the matter of fact way in which the fisherman spins off his report of this midwinter trip. What would a landsman think of starting from Boston in midwinter, thermometer at zero or near it, in a northwest gale of wind, for a chance to fish in a fifteen-foot open dory to earn the money to support his family? Yet this is a common occurrence with our fishermen, and often they do not get as well paid for their labor as the crew (or crowd), as he tells it, did on this trip.

The schooner "Ralph Eaton" arrived at T Wharf March 4th looking not unlike a wreck, and the captain reports having experienced a month of very bad weather, encountering gales from all points of the compass.

"We sailed from Boston about February 1st," said the skipper, "and after we ran our distance we sounded and set trawls on the northern edge of Georges, and finding a few fish we anchored.

"The night we anchored was a terror.

The wind increased to a gale, and it was desperately cold, and a heavy cross sea was running.

"The following day we parted our cable, and were soon drifting southerly before the fast increasing gale, and it was then the seas played havoc with our craft.

"There was nothing to be done but scud before the gale, and that night a terrible sea broke over our starboard quarter and swept the decks of gurry kids and everything movable, and threw the vessel on her beam ends.

"There were two men on deck at the time. One jumped for the cabin and the other for the forecastle.

"We were held down by the sea and wind, masts in the water, for two hours and a half.

"Of course, the scene below was very bad; our fish shifted, water in the vessel rolled up on the port side, and our provisions were soon knocked about.

"On deck we could not get, and the main boom, which was broken in halves, was thumping at the vessel's side, threatening every moment to break in the planks.

"Our main topmast went, also our jumbo boom, and finally the vessel swung off before the wind. Then we got on deck and cleared away the wreck.

"The gale kept up and blew us 140 miles to sea, and for six days we were short of provisions, and the only vessel we spoke was the "Pioneer," which gave us some coal and food.

"After awhile we bent our riding sail and beat back to Boston, and here we are, sadly broken up in vessel and spirits, and no prospect of a dollar a man after a month's hardship."

Among the crew of one of the Georgesmen which escaped the terrible perils of a gale on Georges, was a young man from one of our inland cities, who had made several trips mackereling, in the summer months, where he had heard the "veterans" talk of the perils of the Georges fishery. These stories, told with the gusto of first-class yarn spinners, kindled within him a strong desire to go on one of these trips, which he did, and as it happened, he got an experience which will last him a life-time. We gleaned from him the following narrative of that terrible event, which we publish almost verbatim:—

"The winter found me out of employment, and I determined to gratify my long pent-up inclination of going to Georges. It was early in February. The weather had been extremely mild for the season, and there were busy times at the wharves, fitting away the vessels, some of which had already sailed, and many were nearly ready.

"Upon going to the fitting-out store of Messrs. ———, I was cordially received. They were surprised to learn that I wanted to go to Georges, and endeavored to dissuade me from my purpose; but all of no avail, and as they had a vessel that would be ready to sail in a day or two, told me I could have a chance in her. Procuring the necessary additions to my outfit, I entered heartily into the work of getting our craft in readiness. The ice-house in the hold was filled with the crystal blocks, the cable and anchors overhauled, gurry-pins placed in position, bait of frozen herring packed in the hold, provisions taken care of, and the vessel put in a strong and taut condition.

"On the morning of February 14th we started, and in a glorious run of twenty-four hours, sighted the fleet on the banks, nearly a hundred sail, riding at their anchors, half a mile, and in some instances, a mile apart. It was a pretty sight, and the fine, clear weather rendered it highly enjoyable. We could distinctly see the

men at the rail pulling in fish, rapidly as hands and arms could move. Soon our position was selected, anchor down, and the crew busy getting ready to try their luck.

"The cold, to one of my constitution, was intense, and pierced into the very marrow of my bones, although thickly clothed. But this deep sea fishing was so exciting that I stood at the rail sometimes a full hour, without changing my position, pulling in the big codfish, and occasionally a halibut. It was a moment of supreme gratification when I hauled in my first fish of the latter species, and saw him floating alongside with the hook securely fastened in his mouth. One of the crew helped me to gaff him over the rail, and I felt myself master of the situation. Our steward, a Portuguese, was a clever fellow, and, in honor of my first halibut, brought me a mugful of hot coffee, and a pancake with plums in it, called by the fishermen a 'joeflogger.' Pulling in these big fish from so many fathoms down, against a strong tide, was work I was not accustomed to, and glad enough was I, after partaking of a hearty supper, to turn into my bunk, and to be lulled to sleep by the tossing of the billows.

"The crew were a jolly set, and for several days the weather was fine, the fish abundant, and the fun immense. We had changed our berth twice, each time drawing nearer to the body of the fleet, and each time found the fish more plentiful. I began to think that the Georges fishery, after all, was not so bad as it had been represented, although it used to fret me exceedingly to see so many of the vessels lying so near together, knowing full well that, in case of a sudden storm, and they dragged their anchors, chafed off their cables, and went adrift, collision would be inevitable. But there being no apparent danger, I dismissed the thought in keeping busy.

"We now had more than half a fare, and the skipper remarked, one afternoon, as he lit his pipe: —

"'Boys, if our luck holds on, by another week we'll think of putting our craft on the homeward track.'

"This was cheering, and we finished up the day with a good catch. At sundown, there was quite a sudden change in the weather. The clouds massed, and the rising wind made the sea rough. All signs indicated an approaching storm. It was a wild looking night; the vessels tossed up and down like cockle-shells. At eight o'clock the skipper began to get uneasy. He kept looking up at the sky, and then glanced along the horizon. Ben, my chum, whispered to me: 'Shouldn't wonder if you had a chance to see more o' Georges than you'll ever want to see again. I've been with the old man half a dozen years, and when I see him walkin' and lookin' that way, I make up my mind that something's goin' to happen.'

"By this time the sky had grown inky-black, the wind had veered to the north-east, and was increasing in violence. It began to snow — slowly at first, then more fiercely fell the white flakes. The skipper went forward and examined the cable, then gave orders to pay out some ten fathoms or more, which was done. Our lights in the rigging had been lit since sundown, and all about us were the lights of the fleet, looking so prettily, as they danced up and down with the motion of the vessel. The skipper, upon being asked what he thought, replied: —

"'We'll have a tough time 'tween now and morning, and the watch must keep a sharp lookout for drifting vessels. If the rest of you want to take a nap, do it now, as there won't be much sleeping a couple of hours from now.'

"All hands, except the watch, went

below at about half-past eight o'clock. I could not remain there, but kept going on deck. It was something new and terrible to me, and as I was well wrapped, I did not suffer much from the wet and cold. But I did feel anxious, and I would have given all I possessed, were I safely at home. But wishing was of no avail.—here I was, and I must take my chances with the rest. We can die but once, thought I, and I began to have serious thoughts. Not that I was afraid of death — no, that was not the feeling — but there was one at home whom I wanted to see, and, holding her hand in mine, I should have been better reconciled. But perhaps it is as well not to tell all my thoughts at that fearful time. We have singular fancies in hours of danger.

"It was now about eleven o'clock. The wind had risen fearfully, the snow came down spitefully, and the sea rose higher than I ever supposed it possible for it to rise, and was covered with snowy caps of foam. The sensation of being tossed up and down so violently, together with the darkness and the storm, were not pleasing, and it seemed to me that every plunge the vessel made would be her last.

"As midnight drew near, the gale increased fearfully. I had never experienced anything so terrific before, and the stories which were told on board the mackerel catcher now assumed a more truthful aspect. How the winds shrieked through the cordage, and the waves leaped, seemingly impatient to add us to the many victims which have been swallowed up on this treacherous spot! My shipmates showed no signs of fear; they were now all on deck, and the skipper was keeping a sharp lookout. Ben was also on the alert, and had placed a hatchet near the windlass, to be in readiness should it be deemed necessary to cut our cable. As he came near where I was standing, he very coolly remarked 'that if we did not break adrift ourselves, or some other vessel didn't run into us, he thought we might ride it out.' To me it seemed an utter impossibility for any vessel to stand such a gale, but I said nothing. The great danger to be apprehended was from collision, as in case that either ourselves or some other of the fleet lost their anchor or parted their cable, away they would go with fearful speed; then if they struck another craft, good-bye to both of them — there was not the slightest hope for either.

"The darkness was impenetrable, and a more dismal night I never passed. How I longed for morning to dawn! Once in a while the storm would lull for a little time, and the snow did not fall so thickly; then we could see some of the lights of the fleet; but this is not often. We knew the situation ere the storm came on, but now we must wait till daylight. The hours dragged heavily along — anxious hours they were. They are indelibly impressed on my memory and will not be effaced till death claims me. During the night, a large vessel passed quite near us. We could see her lights, also her spars and sails, as she sped swiftly along on the wings of the storm. Glad enough were we to have her pass us, and I trembled at the thought of our fate, had she struck our little craft. When I learned of the terrible disaster of the gale, I came to the conclusion that this vessel was the cause of some portion of it.

"At length the east began to lighten: morning was coming. What a relief it was when the day dawned! Our danger was not over, for the gale still continued, but there was a comfort which the light brought that did me good. The fearful darkness of the night, and that terrible uncertainty was relieved, as we could now

see our position, and could now guard the better against the threatening dangers. Our vigilance was not relaxed. We had something to eat, and then kept up our watching, for the storm still continued its fury. Somewhere about nine o'clock, the skipper sang out: 'There's a vessel adrift right ahead of us. Stand by with your hatchet, but don't cut till you hear the word.'

"Ben was there at his post. He could be trusted at such a time, and would await orders—this all on board knew full well. All eyes were now bent on the drifting craft. On she came! It was a fearful moment to me, and it was evident that the men—some of whom had followed the Georges fishing for ten seasons, thought there was danger now—but they were not afraid. There they stood, determined to do their best for their lives. I knew I should share the same fate with them, and there was some consolation even in this. The drifting vessel was coming directly for us; a moment more, and the signal to cut must be giving. With the swiftness of a gull she passed by, so near that I could have leaped aboard, just clearing us, and we were saved from the danger, thank God! The hopeless, terror-stricken faces of the crew we saw but a moment, as they went on to certain death. We watched the doomed craft, as she sped on her course. She struck one of the fleet, a short distance astern, and as we gazed they both disappeared. Then we knew that two vessels of the fleet would never again return to port.

"We had little time to think of others, as we began to drag our anchors, and yaw about too much for safety. This was dangerous in the extreme, for if the anchors did not take hold again, we must cut the cables, and, once adrift, we knew our fate. Fortunately, the anchors found holding ground, and we rode again in safety.

"All through the day we watched. Twice was our safety endangered by vessels adrift, but they went clear. We were saved! At sundown the gale moderated, but we knew that many a poor fellow who had left home full of hope, would never more return; that many a wife would never again see her husband, and mothers and brothers and sisters would have cause to remember the terrible gale which had swept so fearfully over the Georges.

"I was on nettles all next day, as I thought the skipper would immediately start for home. But judge of my surprise to see the men coolly get their lines in readiness for fishing, just as if there had been no storm, no danger or peril but a few hours ago. This was indeed intensely practical. They smoked and talked of getting a fare with so much coolness, that it really seemed terrible to me. 'Supposing we should catch another gale—what then?' I received for a reply, that 'they had come to get a trip of fish; I to see how I liked Georges.' We fished through the week, had good luck, and it was a happy moment when the skipper said: 'Get the anchor; we'll turn her nose homeward.' Eastern Point Light, when first sighted, looked cheering and friendly. As we passed in by the fort, there was a great crowd of people, and as they saw our vessel's name, there was rejoicing. Several came on board asking if we had seen such a vessel since the gale. The town was in commotion. Such anxiety I hope never again to witness.

"When the vessel came alongside the wharf, I put my luggage out, and concluded not to repeat the experiment of making a trip to the Georges in midwinter. When I got home, they told me I had grown much older in the few weeks of

my absence. What I experienced that night and day of storm was enough to make any one, especially a green hand, grow old. I have no wish to try it again. If the reader wishes a similar experience, perhaps it would be well for him to take a trip, but I advise all such to make their wills ere they leave port."

MINOT'S LEDGE LIGHT-HOUSE, BOSTON BAY.

LIGHT-HOUSES AND SHIPS.

THE light-houses of the world are in round numbers 6,000, with about 250 light-ships.

Of these lights, Europe has 3309; North America, 1329; Asia, 476; Oceanica, 319; South America, 169; Africa, 219; and West Indies, 106.

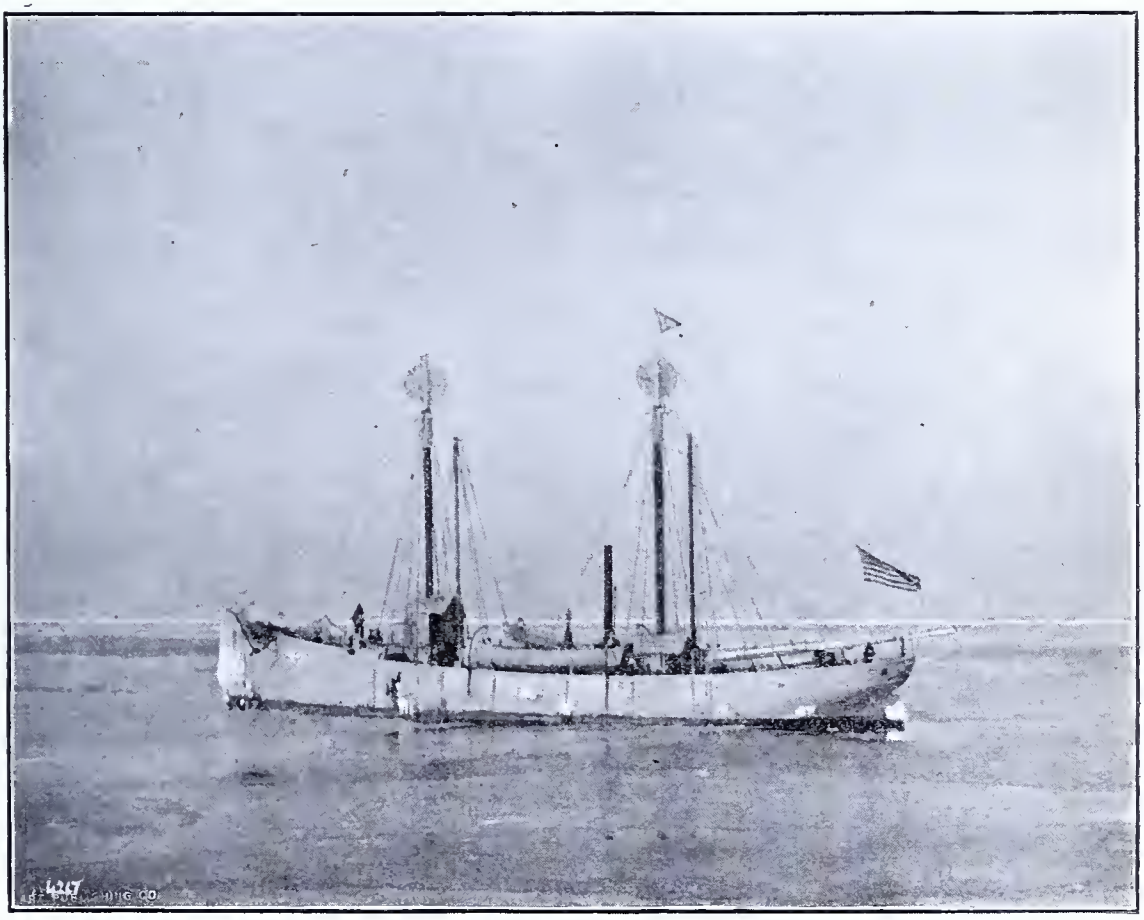
The coasts of the United States are illuminated by 802 lights, distributed as follows:—

Atlantic coast, 467; Gulf coast, 79; Pacific coast, 38; and the Northwestern lakes, 218. Of these lights thirty-two are displayed from light-ships, nearly all of which are on the Atlantic coast.

The first light-house on this coast was built at the entrance to Boston Harbor, on Little Brewster Island in 1716, at a cost of about $15,000.

The first light-house on the dangerous

Minot's Ledge, off Cohasset, was a pile structure, completed in 1848. Three years afterwards it was destroyed by a storm, and the keepers lost their lives. It was succeeded by the most important work ever attempted by our light-house board, the present magnificent rock tower, which ranks, according to Gen. Barnard, an engineer of wide fame, "by the engineer



GREAT ROUND SHOAL LIGHT-SHIP, NANTUCKET SHOAL.

ing difficulties surrounding its erection, and by the skill and science shown in the details of its construction, among the chief of the great rock light-houses of the world."

The purpose of a light-ship is to do the work of a light-house in a place where one is necessary, but where it has not been erected because of the great difficulty and expense of such a structure. The light-ship, to be efficient, must have the permanency of a light-house, and should have as good a light and as far-reaching a fog signal. To ensure permanency of position is a matter of great difficulty.

There are thirty-two light-ships of various sizes on duty off the coast of the United States. The smaller, slighter built and older vessels are moored in sounds and bays. The larger, stronger and later built are in the open ocean. Among the latter is that on New South Shoals, some twenty-one miles at sea, the nearest land being Nantucket Island; Pollock Rip light-ship, moored at the eastern entrance to Vineyard Sound, and another at Sandy Hook, near the entrance to New York Bay.

Every light-ship shows either one or two lights. Each is composed of eight reflectors, each twelve inches in diameter, set upon a ring which encircles the mast, and are lighted and hoisted to the mast-head at night.

These reflectors are illuminated by a kind of Argand lamp, in which the sperm oil formerly burned was succedeed by lard oil, and that is now superseded by mineral oil, burned in a lamp specially adapted to the purpose. The lighting apparatus is enclosed in a lantern, with large panes of glass to protect the light from the wind and from marine birds.

Light-ships displaying revolving lights have been in use off the English coast for many years, but the first one ever used on the American coast will be the new Sandy Hook light-ship.

The following tables are from the United States Fish Commissioners' report for 1889.

TABLE SHOWING THE YIELD, VALUE AND NUMBER OF PERSONS EMPLOYED IN THE FISHERIES OF NEW ENGLAND IN 1889.

STATES.	WEIGHT.	VALUE.	VESSEL FISHERMEN.	SHORE FISHERMEN.	SHORESMEN.	TOTAL.
Maine	129,559,864	$2,111,206	2,680	6,205	5,244	14,129
New Hampshire	4,354,568	88,511	141	194	30	365
Massachusetts	299,217,669	5,858,274	10,851	3,748	2,639	17,238
Rhode Island	127,365,475	935,144	388	896	473	1,757
Connecticut	96,672,464	1,557,506	1,062	1,252	733	3,047
Total	653,170,040	$10,550,641	15,122	12,295	9,119	36,536

TABLE SHOWING BY STATES, THE ACTUAL AND RELATIVE IMPORTANCE OF THE VESSEL AND SHORE FISHERIES OF NEW ENGLAND IN 1889.

	FISHERMEN.				INVESTMENT.				PRODUCTS.			
	NO.		PERCENT.		VALUE.		PERCENT.		VALUE.		PERCENT.	
STATES.	VESSEL.	SHORE.	VESS'L	SHORE	VESSEL.	SHORE.	VESS'L	SHORE	VESSEL.	SHORE.	VESS'L	SHORE
Maine	2,515	6,205	29	71	$871,115	$515,095	63	37	$690,967	$1,420,239	33	67
New Hampshire	141	194	42	58	59,764	9,796	86	14	56,018	32,493	63	37
Massachusetts	10,760	3,748	74	26	5,272,577	567,220	90	10	4,778,185	1,080,089	82	18
Rhode Island	376	896	30	70	236,435	166,445	59	41	398,310	536,834	43	57
Connecticut	1,030	1,252	45	55	681,476	170,608	80	20	1,107,087	450,419	71	29
Total	14,822	12,295	55	45	7,121,367	1,429,164	83	17	7,030,567	3,520,074	67	33

TABLE SHOWING BY SECTIONS THE NUMBER OF PERSONS EMPLOYED IN THE COAST FISHERIES OF THE UNITED STATES IN 1888.

SECTION.	VESSEL FISHERMEN.	SHORE FISHERMEN.	SHORESMEN AND FACTORY HANDS.	TOTAL.
New England States	15,661	11,298	10,351	37,310
Middle Atlantic States	18,228	35,503	12,473	66,204
South Atlantic States	404	8,799	1,336	10,539
Gulf States	1,639	6,364	1,540	9,543
Pacific States	1,879	8,804	3,167	13,850
Total	37,811	70,768	28,867	137,446

TABLE SHOWING THE APPARATUS EMPLOYED AND THE CAPITAL INVESTED IN THE FISHERIES OF NEW ENGLAND IN 1889.

VESSELS.

STATES.	FISHING. NO.	FISHING. NET TONNAGE.	FISHING. VALUE.	TRANSPORTING. NO.	TRANSPORTING. NET TONN'GE	TRANSPORTING. VALUE.	VALUE OF FISHING OUTFIT.	VALUE TRAN. OUTFIT.
Maine	349	11,476.44	$523,690	59	1,660.23	$75,475	$201,487	$13,100
New Hampshire	15	588.05	32,000	.....	.....	.....	11,099	.....
Massachusetts	814	57,984.18	3,042,745	22	1,275.12	55,600	1,533,398	7,425
Rhode Island	62	1,402.05	194,325	7	82.74	2,625	26,385	400
Connecticut	200	5,052.60	512,155	14	217.08	13,395	134,652	2,050
Total	1,440	76,503.32	4,304,915	102	3,235.17	147,095	1,907,021	22,975

APPARATUS OF CAPTURE.

STATES.	BOATS. NO.	BOATS. VALUE.	POUND NETS, TRAP NETS, AND WEIRS. NO.	POUND NETS, TRAP NETS, AND WEIRS. VALUE.	SEINES. NO.	SEINES. VALUE.	GILL NETS. NO.	GILL NETS. VALUE.
Maine	5,990	$237,469	647	$99,917	131	$32,925	5,101	$48,373
New Hampshire	73	4,170	12	860	10	3,800	134	1,570
Massachusetts	3,494	254,033	224	222,583	293	124,845	4,177	44,212
Rhode Island	651	62,743	182	81,800	51	13,950	117	7,630
Connecticut	1,353	98,595	113	37,800	55	7,750	62	2,524
Total	11,561	657,010	1,178	442,960	540	183,270	9,591	104,309

STATES.	BAG NETS. NO.	BAG NETS. VALUE.	FYKE NETS. NO.	FYKE NETS. VALUE.	MISCELLANEOUS NETS. NO.	MISCELLANEOUS NETS. VALUE.	LINES. VALUE.
Maine	280	$11,570	134	$ 550	107	$ 337	$110,051
New Hampshire	.....	.....	.....	.....	.....	.....	13,171
Massachusetts	.....	.....	15	100	545	1,134	565,516
Rhode Island	.....	.....	376	2,680	.....	.....	2,625
Connecticut	.....	.....	440	2,230	.....	.....	1,275
Total	280	11,570	965	5,560	652	1,471	692,638

STATES.	POTS. NO.	POTS. VALUE.	HARPOONS AND SPEARS. VALUE.	DREDGES, TONGS, R'K'S. VALUE.	SHORE PROP'TY	CASH CAPIT'L	TOTAL.
Maine	127,966	$115,717	$ 887	$3,237	$743,808	$671,300	$2,889,893
New Hampshire	2,240	2,800	90	.....	32,100	11,000	112,660
Massachusetts	28,494	40,297	1,397	9,555	3,058,207	4,284,200	13,245,229
Rhode Island	5,205	6,503	450	3,779	369,759	244,524	1,020,178
Connecticut	11,553	24,959	469	29,675	1,647,105	312,200	2,826,834
Total	175,458	190,276	3,275	46,246	5,850,979	5,523,224	20,094,794

MISCELLANEOUS FACTS.

THE yield and value of clams for the New England States in 1889 was:—

Soft Shell Clams, 11,542,272 pounds; value, $395,997.00.

Round Clams, or Quahaugs, 544,200 pounds; value, $59,363.00.

Scallops, 438,181 pounds; value, $48,201.00.

THE same variety of fish caught to-day on our coast are, according to ancient history, precisely the same as were caught before the landing of the Pilgrims.

THE question of "Bounty," or allowance to vessels employed in the salt cod fishery at sea, at least four calendar months, was passed by Congress in 1792, as follows: Vessels measuring over five and not exceeding thirty tons, $3.50 per ton. If measuring more than thirty tons, $4.00 per ton. The bounty for one vessel for one season, whatever her tonnage, should not exceed $360.00. The largest amount paid in one season was in 1838, $314,149.00. This law was repealed about 1858. The French government paid in bounties to her fishermen an average per year between 1841 and 1850 of $780,000.00.

CORK is about the most buoyant substance there is, but there are points beyond which even cork cannot go. A cork sunk 200 feet deep in the ocean will not rise again to the surface, owing to the great pressure of the water. At any less distance from the surface, however, it will gradually work its way back to light once more.

THE turtle lives for nearly a century, and the pike for about 175 years.

IN the gale of Feb. 24, 1862, were lost fifteen fishing vessels with one hundred and twenty men, leaving seventy widows and one hundred and forty fatherless children.

A CAREFUL investigation shows that the New England fishing fleet consumes annually the following products of the farmer and planter:—

Cotton, lines, seines and nets,	1,500,000	Lbs.
" in sails	675,000	"
Rice	70,000	"
Butter	595,350	"
Lard	560,000	"
Dried Apples	184,680	"
Mustard	3,645	"
Sage	330	"
Squashes	49,650	"
Fresh Meat	380,295	"
Flour	23,955	Bbls.
Beef	13,365	"
Pork Shoulders	5,163	"
Pork	3,645	"
Beans	5,466	"
Peas	2,430	Bush.
Potatoes	134,460	"
Onions	8,960	"
Beets	4,860	"
Turnips	6,480	"
Meal	4,800	"
Cabbages	164,160	
Vinegar	6,200	Gals.
Pepper Sauce	4,000	Bottles.
Milk	85,200	Cans.

THE largest halibut of which we have any record weighed 637 pounds, caught near Boothbay, Me., 1827. The smallest weighed eight ounces. A 79-pound bass was taken near Portsmouth, N. H., 1881. The best season's stock in the halibut fishery, was by the schooner "Gertie E. Foster," in 1875. In eleven months she landed 668,517 pounds of halibut, and 19,220 pounds of cod, stocking $26,071.56.

FIRST fish store in Boston, 1807. First fresh fish store, 1835.

VESSELS first began to carry ice to sea for preserving fish in 1845.

NONE on the American coast, so far as reported, ever saw a young swordfish. The smallest reported weighed forty-six pounds. Their only known breeding ground is in the Mediterranean Sea.

There the same fish is found weighing one-half pound. It is naturally inferred from this that all our swordfish are Mediterranean products.

In 1873, a St. Louis, Mo., young lady on a yacht in Boston Bay, caught a cod weighing 130 pounds.

August 24, 1873, were lost nine fishing vessels and one hundred and twenty-eight men.

First cargo of herring from Newfoundland, 1837.

Every part of the fish is now utilized, the skin being the last to find its place among merchantable articles. This is used for the manufacture of fish glue and cement, and the product is ranked among the best in the world.

The whitebait, the sprat, the sardine, and the anchovy are the smallest of the finny tribe, and yet the collection and sale of these form important and very profitable industries.

A great pipefish was recently caught in a weir near Jonesport, Me., and sent to the United States Fish Commission. It was about fourteen inches long and about as large in diameter as a carpenter's pencil, the body being covered with bony plates, like a coat of mail, and is a rare fish in northern waters.

Dried fish has long been, and is even to-day, to a certain extent, the legal tender of Iceland.

The discovery of a fish with imperfectly developed eyes made it probable that sunlight does not reach beyond a certain depth of the ocean, but that conjecture has recently been confirmed to a rather unexpected degree.

By means of extra sensitive photographic plates, sunk in the Mediterranean on one of the calmest days in the year, an Italian scientist has demonstrated that the almost vertical rays of the noonday sun in midsummer do not penetrate beyond a depth of one hundred and fifty fathoms.

There is a tradition in Catholic countries that the haddock was the fish out of whose mouth the apostle Peter took the tribute money, and that the two dark spots on the sides of the fish preserve to this day the impression of his thumb and finger.

The question of the nationality of the persons constituting the crews of American fishing vessels is of marked consequence, in view of the dependence to be placed on the fishery marine of New England in the event of war. The figures show that Americans constitute 78.30 per cent of the fishermen, while British provincials compose 9.52 per cent, and all other nationalities 12.18 per cent.

In nearly all the markets of German cities, fish are sold alive.

The only fresh water fish in the Canary Islands is the eel.

A submarine electrical lamp has been tested in Toulon at a depth of thirty feet. It illuminated a radius of 100 feet. Fish surrounded it like insects about a lamp.

The flounder lays 7,000,000 eggs annually; several others from 1,000,000 to 3,000,000, while the turbot is credited with depositing from 11,000,000 to 12,000,000 during each breeding season.

The greatest known depth of the ocean is midway between the islands of Tristan d'Acunha and the mouth of the Rio de la Plata. The bottom was here reached at a depth of 46,236 feet, or eight and three-fourths miles, exceeding by more than 17,000 feet the height of Mt. Everest, the loftiest mountain in the world. In the north Atlantic Ocean, south of Newfoundland, soundings have been made to a depth of 4,580 fathoms, or 27,480 feet; while depths equaling 34,000 feet, or six and

one-half miles, are reported south of the Bermuda Islands. The average depth of the Pacific Ocean, between Japan and California, is a little over 2,000 fathoms; between Chili and New Zealand, 1,500 fathoms, and between Chili and the Sandwich Islands, 2,500 fathoms. The average depth of all the oceans is from 2,000 to 3,000 fathoms.

ELECTRICAL eel is only found in the northern rivers of South America.

THE fish-hook of thirty centuries back was precisely similar in every respect to the fish-hooks of to-day, save only in the metal employed, which then was bronze and now steel.

AFTER four years of sounding, dredging, etc., the expedition sent out under the auspices of the British government, for the purpose of mapping the floor of the ocean, has published its reports and unfolded its maps to the curious gaze of the "land lubbers."

They showed that the Atlantic if drained would be a vast plain, with a mountain range near the middle running parallel with our coast. Another range intersects this first, almost at right angles, and crosses from Newfoundland to Ireland.

The Atlantic, according to these soundings and maps, is thus divided into three great basins, but they are no longer set down as "unfathomed depths." The tops of most of these sea mountains are about two miles below the surface, and the deepest of the basins two and a half miles deeper. According to Reclus, the tops of these mountains are as white as if they were lying in the region of perpetual snow, the cause being the countless numbers of a species of pure white shell, which literally cover what would otherwise be jagged surfaces.

THE schooner "Sea Fox" landed, February, 1891, the largest trip of fish ever brought in by a haddock fisherman. It consisted of 132,500 pounds from Cape Shore. It comprised 20,000 pounds of haddock; 85,000 pounds of codfish; 12,000 pounds of hake; 15,000 pounds of cusk, and 500 pounds of halibut.

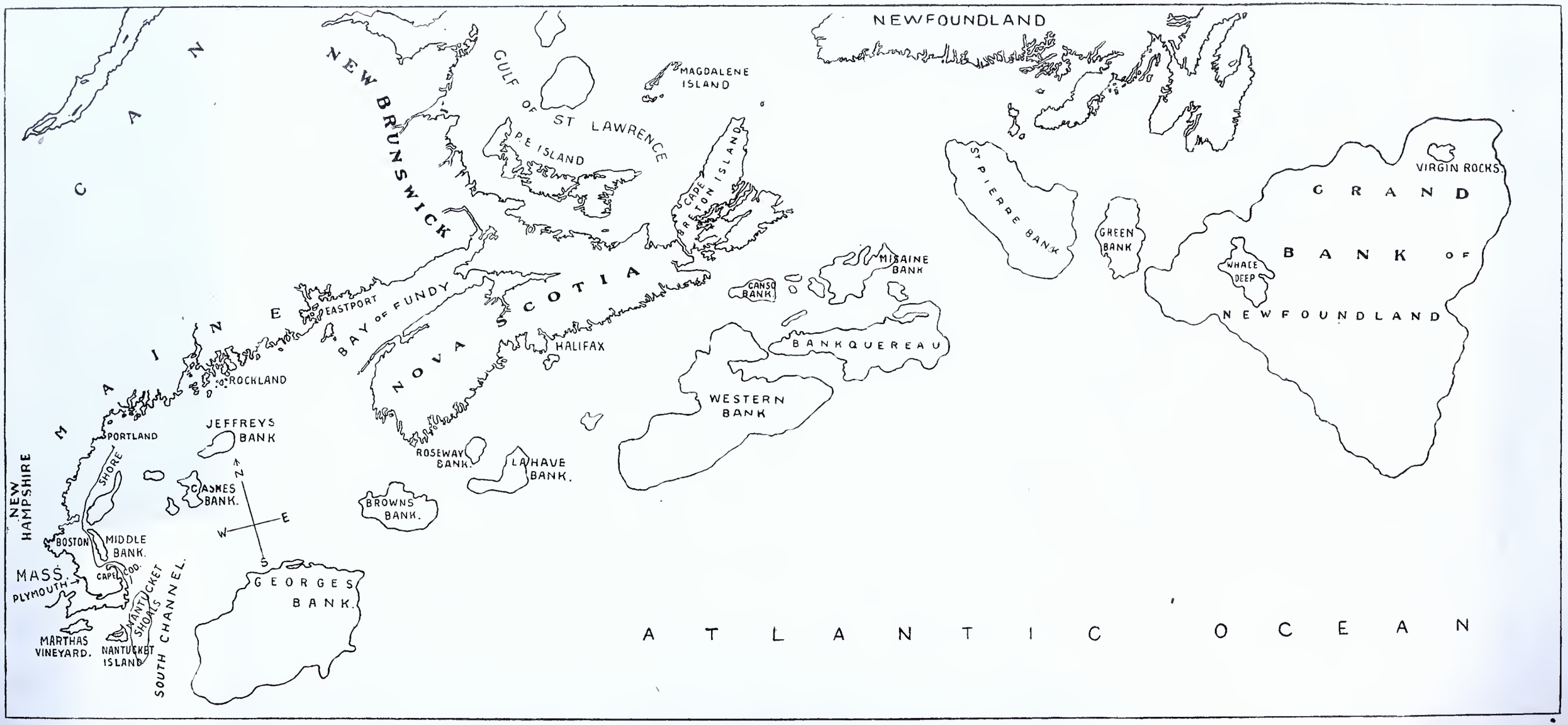
THE sea yields many precious things — coral, amber and pearls — but it is not generally known that, in certain parts of the Mediterranean, a species of mussel is found, of which the shells contain one of the most beautiful textile materials known. These shells are about seven inches long and three inches broad, and each of them contains a piece of the fibre, weighing half a drachm, from which spun and woven goods are made.

UNTIL the age of bronze arrived, shells of various sorts furnished material for a large percentage of the hooks made, and hard wood, sharpened, was much employed.

THE jellyfish has not any teeth, but uses himself just as if he were a piece of paper when he is hungry, getting his food and then wrapping himself about it.

A WHALE, recently captured in the Arctic waters, was found to have imbedded in its side a harpoon that belonged to a whaling vessel that had been out of service about half a century.

THE ocean is more productive than the land. An acre of good fishing ground will yield more food than an acre of the best farm.



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